STAFF REPORT

GROUNDWATER CONTAMINATION OCCURRING IN SECTION 24 OF AVON TOWNSHIP

Stream and well samples were obtained from Section 24 of Avon Township, Oakland County, and Section 19 of Shelby Township on March 7th and 23rd, 1977. The purpose of this sampling was to provide additional information on a continuing groundwater pollution problem in Section 24 of Avon Township. The results of these samples are tabulated in the attached table. A discussion of these results will be divided along geographical lines, namely; The Honeywell Drain and the effect of the S.E.O.I.A. discharge on that drain; The Ladd Drain and the effect of the Sandfill discharge on that drain; Private wells along School Road; Private wells along Dequindre; and private wells along Hamlin Road.

THE HONEYWELL

The nature of the S.E.O.I.A. discharge was found to be similar to that found in previous samplings. Of concern is the high concentration of ammonia, 95 mg/l; the presence of B.O.D., 35 mg/l; and occasionally iron. Dissolved zinc, chrome, and copper concentrations were negligible, being .11, 02., and .01 mg/l respectively. A previous sampling of the outfall has revealed no detectable amounts of PCB. This discharge is affecting the Honeywell Drain by raising the instream concentration of ammonia. 2.5 mg/l of ammonia were reported in the Honeywell downstream of the discharge. Higher concentrations have been reported downstream. At all times upstream concentrations have been negligible, confirming that the underdrain is the sole source of NH_3.

A sample was taken from an upstream manhole of the underdrain system. This sample differed chemically from the sample taken of the total discharge. These differences however, are ambiguous since higher concentrations of pollutants (i.e.; Fe, COD, NH_3, Cl) are not found consistently at one location. It has been suggested that differences in the quality of water from these two locations could be used to determine the leachate contribution of Stan's and S.E.O.I.A. Based upon our data I feel we can only assume that contaminants are coming from both sources. Based upon the Keck Report I feel we can say that the mjaor amount of pollutants are coming from Stan's Landfill.

THE LADD

Observations of the Sandfill dewatering and the absence of flow in the Ladd upstream of Sandfill lead us to believe that the water flowing in Ladd Drain at Dequindre on the date of sampling was practically identical in terms of flow and character to the water being pumped from the Sandfill Inc. excavation. Sandfill is directly east of the southern half of Stan's trucking as shown on the attached map.

Groundwater Contamination
Section 24, Avon Twp., Oakland Co.

The Ladd continued

The Ladd Drain contained some small amounts of C.O.D., NH_3 and Total Phosphorous. Chlorides, T.D.S. and Iron concentrations were normal. It did contain a very high suspended solids concentration, 746 mg/l, which resulted from the Sandfill dewatering. The small amounts of C.O.D., ammonia, and phosphorous in the drain may be from landfill or manure pile leachate. The concentrations of C.O.D., NH_3 and PO_4 observed though, were not excessively high. The high suspended solids concentration is coming from a single source which could easily be controlled.

SCHOOL ROAD

The sampling of wells along School Road has raised the possibility that the leachate plume from Stan's may have traveled as far as 1740 School Road. Wells west of 1740 have all been serviced by a public water supply. 1740 is approximately 1/4 mile east of Stan's. Chlorides, sodium, iron and total dissolved solids are all slightly above background levels. A C.O.D. of 67 mg/l is significantly higher than background groundwater levels and all of these parameters are above levels obtained in 1976. The ammonia concentration in this well however, is nil and does not correlate well with the other parameters. Two other wells, just to the east of 1740, have relatively good water quality. I would suggest the resampling of this well within 6 months to better ascertain whether it is being contaminated.

DEQUINDRE ROAD

The water supplies along Dequindre Road are generally of good quality with the exception of the northern Detroit Sportsmen Congress well which has high levels of T.D.S., chlorides and sodium. The absence of any significant amount of C.O.D. or ammonia in this well argue against contamination from landfills or tile fields.

There does not presently appear to be any problems with wells along Dequindre Road in Shelby Township which can be associated with landfills. The possible eventual movement of leachate from Stan's to Dequindre will be influenced by clay fills located around the periphery of a M.A.L. Landfill. This M.A.L. Landfill is located on the southwest corner of School and Dequindre.

HAMLIN ROAD

The water supplies south and east of Stan's Landfill are of relatively good quality with a few exceptions.

1440 Hamlin's well contained 9.7 mg/l of NO_2-NO_3, but relatively low C.O.D., T.D.S., and iron. From this data and surrounding water quality it appears that the high nitrate level is associated with tile field effluent rather than any leachate source.

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Hamlin Road continued

The water at 1663 Hamlin is grossly contaminated containing ammonia concentrations of 12. mg/l, T.D.S. of 2000 mg/l and C.O.D. of 150 mg/l. The likely sources of this contamination are Stan's Landfill and the manure pile at the Mushroom Farm at 1441 Hamlin.

Data shown in the Keck Report also revealed high levels of chlorides and C.O.D. in this area (Keck OW 19), although surrounding wells were found to be generally lower in C.O.D. and T.D.S.

The data collected on March 7th and 23rd and the Keck Report does not conclusively identify one source. The attached map shows that 1663 Hamlin is east and down gradient of both Stan's Landfill and the manure pile of the Mushroom Farm. The well water contains very little phosphorous which should be expected from manure pile runoff. This well water has a greenish color similar to a pond just west of the well. Sulphate, HCO_3, T.D.S., and chloride levels from 1663 and the pond differ markedly though. This water is not being used for human consumption. The occurrence of high T.D.S., ammonia and C.O.D. levels cannot be explained by any onsite contamination. It is possible that leachate from the manure pile or Stan's Landfill is contaminating this well and that wells installed by Keck between this well and these probable sources of contamination were monitoring the quifer at a level above or below the leachate plume.

SUMMARY

In summary this data 1) confirms that ammonia and some B.O.D. are entering Honeywell Drain from the S.E.O.I.A. outfall to the point where water quality standards are being violated 2) raises the possibility that an additional well along School Road is being contaminated by landfill leachate 3) shows that presently there is no leachate contamination of wells along Dequindre Road 4) points out excessive suspended solids in the Ladd Drain caused by the Sandfill Landfill 5) is unable to ascertain the source of pollution responsible for the degradation of a well at 1663 Hamlin.

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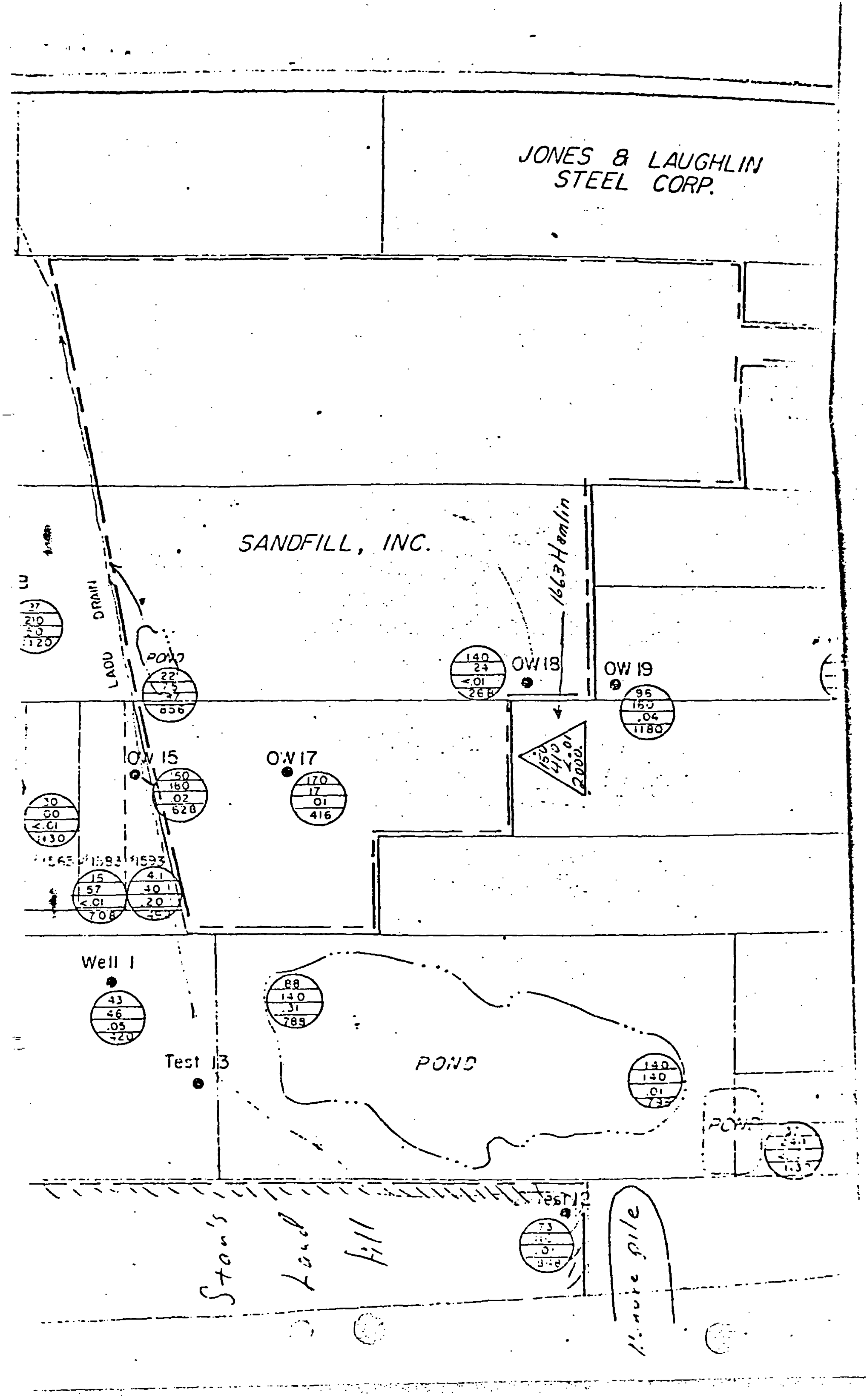
JONES & LAUGHLIN
STEEL CORP.
SANDFILL, INC.
1663 Hamlin
DRAIN
LADU
POND
OW 18
OW 19
OW 15
OW 17
140
24
<.01
268
95
150
.04
1180
150
180
.02
628
170
17
.01
416
150
410
<.01
2000
Well 1
43
46
.05
420
Test 13
88
140
.31
789
POND
140
140
.01
15
57
<.01
708
1593
4.1
40
.20
Test 12
73
Stan's Land fill
Manure pile